

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

| | | |
|---|---|--|
| Applicant's or agent's file reference TJF/JY/42178 | FOR FURTHER ACTION | |
| See Form PCT/IPEA/416 | | |
| International application No. PCT/GB2004/002853 | International filing date (day/month/year) 02.07.2004 | Priority date (day/month/year) 04.07.2003 |
| International Patent Classification (IPC) or national classification and IPC E21B47/18 | | |
| Applicant EXPRO NORTH SEA LIMITED ET AL. | | |
| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 8 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> <i>sent to the applicant and to the International Bureau</i> a total of sheets, as follows:</p> <ul style="list-style-type: none"> <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. <p>b. <input type="checkbox"/> <i>(sent to the International Bureau only)</i> a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> | | |
| <p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input checked="" type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application | | |
| Date of submission of the demand 12.03.2005 | Date of completion of this report 13.09.2005 | |
| Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016 | Authorized Officer Philippot, B Telephone No. +31 70 340-2822 | |



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PCT/GB2004/002853

IAP20 Rec'd PCT/PTO 30 DEC 2005

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
 - international search (under Rules 12.3 and 23.1(b))
 - publication of the international application (under Rule 12.4)
 - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
 - a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

Description, Pages

1-33 as originally filed

Claims, Numbers

1-34 as originally filed

Drawings, Sheets

1/3-3/3 as originally filed

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
- 3. The amendments have resulted in the cancellation of:
 - the description, pages
 - the claims, Nos.
 - the drawings, sheets/figs
 - the sequence listing (*specify*):
 - any table(s) related to sequence listing (*specify*):
- 4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - the description, pages
 - the claims, Nos.
 - the drawings, sheets/figs
 - the sequence listing (*specify*):
 - any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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(b)

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:
 - the entire international application,
 - claims Nos. 14-16, 27-29
 - because:
 - the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):
 - the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
 - the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
 - no international search report has been established for the said claims Nos. 14-16, 27-29
 - the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
 - the written form has not been furnished
 does not comply with the standard
 - the computer readable form has not been furnished
 does not comply with the standard
 - the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.
 - See separate sheet for further details

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Q#

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|---------------------|------|--------|----------------------------------|
| Novelty (N) | Yes: | Claims | 2,3,5-8,10,11,18-21,23,24,,32-34 |
| | No: | Claims | 1,4,9,12,13,17,22,25,26,30,31 |
| Inventive step (IS) | Yes: | Claims | |
| | No: | Claims | 1-13,17-26,30-34 |

| | | | |
|-------------------------------|------|--------|------------------|
| Industrial applicability (IA) | Yes: | Claims | 1-13,17-26,30-34 |
| | No: | Claims | |

2. Citations and explanations (Rule 70.7):

see separate sheet

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Re Item V.

1. The following documents are referred to in this communication:

D1 : GB 2 160 565 A (EXXON PRODUCTION RESEARCH CO) 24 December 1985
(1985-12-24)
D2 : FR 2 721 347 A (MAGELLAN CY LTD;ENGINEERING INDUSTRY LTD) 22
December 1995 (1995-12-22)
D3 : US 4 774 694 A (MOLL HELMUT) 27 September 1988 (1988-09-27)
D4 : US 6 097 310 A (MORSY HATEM SALEM ET AL) 1 August 2000 (2000-08-01)
D5 : US 6 105 690 A (BIGLIN JR DENIS P ET AL) 22 August 2000 (2000-08-22)
D6 : WO 02/072993 A (BAKER HUGHES INC) 19 September 2002 (2002-09-19)

2.1 Independent claim 1 :

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parenthesis applying to this document):

A method of downhole data communication in a well (10) in which there is a flow of product (20) from the formation (14) towards the surface, the data communication taking place between two locations in the flow path, at least one of which is downhole in the well, and the method comprising the steps of: controlling a flow rate of the product at a first of the two locations (14) in dependence on data to be transmitted (page 2, lines 78-104); measuring, at the second of the two locations (29), the flow rate of the product to detect variations in flow rate of the product at the second location caused by said controlling of the flow rate of the product at the first location (page 2, lines 105-123); and using the results of the measuring step to extract the data transmitted (page 2, lines 123-127).

A similar reasoning could have been made using any of the documents D2-D5 instead of D1.

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2.2 Independent claim 12 :

The technical features of the apparatus claim 12 are equivalent to the features of the method claim 1. The subject-matter of claim 12 is therefore not new (Article 33(2) PCT). A similar reasoning could have been made using any of the documents D2-D5 instead of D1.

2.3 Independent claim 25 :

D6 discloses a method of downhole data communication in a well in which there is a flow of product from the formation towards the surface comprising the step of transmitting data by modulating the flow rate of the product to encode the data (see pages 7-8). All the technical features of claim 25 are known from D6, therefore the subject-matter of claim 25 is not new (Article 33(2) PCT).

2.4 Independent claim 26 :

The subject-matter of claim 26 is similar to the one of claim 12, and as such is known from D1.

Therefore the subject-matter of claim 26 is not new (Article 33(2) PCT).

2.5 Independent claim 30 :

D1 discloses (the references in parenthesis applying to this document):

A transmitter module (28) for use in a producing well downhole communication method, the module being arranged for location at least partially in tubing (10) carrying product (20) and comprising a controllable valve (see page 2, lines 89-96) for controlling the flow rate of product through the tubing and a control unit (28) for controlling the valve and hence the flow rate in dependence on data to be transmitted (see page 2, lines 78-89).

All the technical features of claim 30 are known from D1, therefore the subject-matter of

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claim 30 is not new (Article 33(2) PCT).

2.6 Independent claim 31 :

D1 discloses (the references in parenthesis applying to this document):

A receiver module for use in a producing well downhole communication method, the module being arranged for location at least partially in tubing carrying product and comprising, a flow rate meter (29) for measuring the flow rate of product (20) through the tubing (10), and a control unit (30) for analysing the output of the flow rate meter to extract data carried by variations of the flow rate.

All the technical features of claim 31 are known from D1, therefore the subject-matter of claim 31 is not new (Article 33(2) PCT).

2.7 Independent claim 32 :

Two-way data communication in a producing well is known in the art (for example see D4, column 1, lines 23-28). In view of paragraphs 2.5 and 2.6 above, the skilled person would regard it a normal design procedure to combine all the features set out in claim 32. Hence, no inventive step is present in the subject-matter of claim 32.

2.8 Independent claim 33 :

In claim 33 a slight change in the method of claim 1 is defined which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject-matter of claim 33 lacks an inventive step.

2.9 Independent claim 34 :

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In claim 34 a slight constructional change in the apparatus of claim 12 is defined which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject-matter of claim 34 also lacks an inventive step.

3. Dependent claims 2-11,13, 17-24 :

Dependent claims 2-11,13, 17-24 do not seem to contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).